

The tribe Triodieae (Chloridoideae: Gramineae)

S.W.L. Jacobs

Abstract

Jacobs, S.W.L. (Royal Botanic Gardens Sydney, Mrs Macquaries Road, Sydney, NSW 2000, Australia) 2004. The tribe Triodieae (Chloridoideae: Gramineae). *Telopea* 10(3): 701—703. The tribe **Triodieae** is formally published and delimited, and a key to the four genera provided.

Introduction

The *Flora of Australia* series requires that the names for all levels of taxa must be formally published before they can be used.

Bentham (1881) described the subtribe *Triodiinae* within his *Festuceae* (Pooideae: Gramineae). Bentham circumscribed his subtribe on the basis of >2 (fertile) florets per spikelet, lemmas rarely >3-nerved, and ending in 3 teeth, lobes or awns. He included *Triodia*, *Diplachne*, *Triplasis*, *Scleropogon*, *Eremochloa* and *Triraphis*, genera now usually placed in three different subfamilies: *Triodia*, *Diplachne*, *Triplasis* and *Triraphis* are all usually placed in the subfamily Chloridoideae (Watson and Dallwitz 1992); *Scleropogon* is retained in the Pooideae; and *Eremochloa* is usually placed in the Panicoideae. Of Bentham's original defining characters, the only one that more or less still holds for the current usage of *Triodieae* is the 'lemmas ... ending in 3 teeth, lobes or awns'.

Triodia is the only genus of Bentham's subtribe *Triodiinae* retained in the tribe *Triodieae* as currently used, and is here selected as the lectotype of the subtribe. Watson and Dallwitz (1980) seem to have been the first to actually use the name '*Triodieae*' for a tribe containing *Triodia* and related genera, the same sense in which it is used here. The tribal name has been used elsewhere (Wheeler et al. 1982, 2002, Macfarlane 1992) with many authors not concerned about the formal publication of names above the genus level. Walsh (1994) retained subtribe *Triodiinae* but transferred it to the tribe *Eragrostideae* (Chloridoideae) and interpreted it in the same sense as used here for *Triodieae*. *Triodia* and its relatives are now generally accepted as being Chloridoid grasses (Jacobs 1971, Watson & Dallwitz 1980, 1992, Jacobs & Pickard 1981, Wheeler et al. 1982, 2002, Macfarlane 1992, Walsh 1994, Lazarides 1997).

Triodieae (Benth.) S.W.L. Jacobs *stat. nov.*

Subtribe *Triodiinae* Benth. (1881: 30) in part; Walsh (1992: 555).

Lectotype, here designated, *Triodia* R.Br.

Plantae perennes pro parte maxima habitu hemisphaerici ramis aeriis. Laminae foliorum planae ad initium sed plicatascentes permanente ubi ariditate afflictiones, anatomia 'Kranz' cellulis vaginarum fasciculatarum mesophyllum vice fasciculorum vascularium cingentibus.

Perennials, mostly hummock-forming. Leaves: sheaths often resinous; ligule a row of hairs or teeth, or sometimes a narrow, fringed membrane; blade originally flat,

permanently folding when stressed, sometimes resinous; anatomically C_4 with distinctive parenchymatous bundle-sheath cells that arch well away from the vascular bundle to surround the mesophyll; the stomatal grooves either distributed evenly on both surfaces and then the leaves rigid, pungent when dry and usually non-resinous ('Hard' Spinifex), or the grooves distributed all over the adaxial surface and with few near the midrib or none on the abaxial surface and then the blades comparatively soft, usually resinous and non-pungent ('Soft' Spinifex). Inflorescence a panicle, or a single 2- or 1-sided raceme or spike, sometimes reduced to 1 or a few spikelets. Glumes 2, 1-many-nerved, ranging from \pm equal to distinctly unequal, persistent. Florets 1-many; fertile bisexual florets 1-many, sometimes with incomplete florets or an extended, naked rhachilla above; rhachilla disarticulating below each floret and above the persistent glumes. Lemma 3-many-nerved, the nerves often in 3 groups; apex variously lobed, emarginate, mucronate, awned (1-3), or almost entire.

Notes: An apparently isolated tribe confined to Australia and dominant in the hummock grasslands of arid Australia, but while some species have the Chloridoid-type bicellular microhairs, others have the Panicoid-type bicellular microhairs, as do some other Chloridoid grasses (Jacobs 1987). In this treatment, the tribe is kept in subfamily Chloridoideae and comprises at least four genera, *Triodia*, *Plectrachne*, *Monodia* and *Symplectrodia*. Lazarides (1997) suggested that *Plectrachne* be included in *Triodia* but supplied data supportive of dividing both genera into three new genera, with possibly even more genera in *Triodia* s. str., based on leaf morphology and lemma apex characters. To these characters could be added the bicellular microhairs and silica cells of the epidermes.

Key to genera

- 1 Spikelets with 1 floret; rhachilla prolonged beyond the floret, the extension naked; lemma with a single terminal awn **Monodia**
- 1* Spikelets with more than 1 floret 2
- 2 Fertile floret 1 only, at base of spikelet, with 2 or more incomplete florets widely separated on a very long rhachis above it; florets becoming longer towards tip of rhachis **Symplectrodia**
- 2* Fertile florets more than 1, usually 3-many, closely or loosely imbricate, becoming progressively smaller towards tip of rhachis and, if many, upper few often incomplete 3
- 3 Glumes usually shorter than the florets; lemma apex variously emarginate, lobed, toothed or nearly entire, not with distinct long capillary awns **Triodia**
- 3* Glumes usually longer than the florets; lemma apex with three capillary awns **Plectrachne**

Acknowledgments

Many thanks to Karen Wilson for the Latin diagnosis and helpful comments on the draft.

References

- Bentham, G. (1881) Mr G. Bentham on Gramineae. *Journal of the Linnean Society, Botany* 19: 14-134.
- Jacobs, S.W.L. (1971) Systematic position of the genera *Triodia* R.Br. and *Plectrachne* Henr. (Gramineae). *Proceedings of the Linnean Society of New South Wales* 96: 175-185.
- Jacobs, S.W.L. (1987) Systematics of the chloridoid grasses. pp. 277-286 in T.R. Soderstrom, K.W. Hilu, C.S. Campbell and M.E. Barkworth (eds), *Grass systematics and evolution*. (Smithsonian Institution Press: Washington D.C.).

- Jacobs, S.W.L. & Pickard, J. (1981) *Plants in New South Wales*. (New South Wales Government Printer: Sydney).
- Lazarides, M. (1997) A revision of *Triodia* including *Plectraclue* (Poaceae, Eragrostideae, Triodiinae). *Australian Systematic Botany* 10: 381–489.
- Macfarlane, T.D. (1992) Poaceae classification. pp 1111–1117 in: Wheeler, J.R., Rye, B.L., Koch, B.L. and Wilson, A.J.G., *Flora of the Kimberley region*. (Dept. of Conservation and Land Management: Perth).
- Walsh, N.G. (1994). Poaceae. pp 356–627 in: Walsh, N.G. and Entwisle, T.J., *Flora of Victoria*. vol. 3 (Inkata Press: Melbourne).
- Watson, L. and Dallwitz, M.J. (1980). *Australian Grass genera: anatomy, morphology and keys*. (Research School of Biological Sciences, Australian National University: Canberra).
- Watson, L. and Dallwitz, M.J. (1992) *The grass genera of the World*. (CAB International: Wallingford, UK).
- Wheeler, D.J.B., Jacobs, S.W.L. & Norton, B.E. (1982) *Grasses of New South Wales*. (University of New England Press: Armidale).
- Wheeler, D.J.B., Jacobs, S.W.L. & Whalley, R.D.B. (2002) *Grasses of New South Wales*. 3rd. edition (Botany Department, University of New England: Armidale).

Manuscript received 9 July 2003
Manuscript accepted 24 November 2003

